

INFOSOFT IT SOLUTIONS

Training | Projects | Placements

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Core Java

. Introduction to Java

- History of Java
- Features of Java
- Java Virtual Machine (JVM)
- Java Development Kit (JDK), Java Runtime Environment (JRE)

Basic Syntax

- Java program structure
- Comments
- Data types
- Variables
- Operators

Control Flow Statements

- Conditional statements (if, else-if, switch)
- Loops (for, while, do-while)
- Break and continue statements

Object-Oriented Programming in Java

- Classes and Objects
- Constructors
- Methods
- Method overloading and overriding
- Inheritance
- Polymorphism
- Encapsulation
- Abstraction

Packages and Interfaces

- Packages and package naming conventions
- Access specifiers (public, private, protected, default)
- Import statements
- Interface and its implementation

Exception Handling

- Understanding exceptions
- Try-catch blocks
- Multiple catch blocks
- Finally block
- Custom exceptions

Arrays

- Single-dimensional arrays

- Multi-dimensional arrays
- Enhanced for loop (for-each loop)

Strings

- String class
- String methods
- StringBuilder and StringBuffer classes

Java Input/Output (I/O)

- File handling in Java
- Byte Streams and Character Streams
- Serialization and Deserialization

. Generics

- Generic classes
- Generic methods
- Wildcards in generics

Collections Framework

- Collection interfaces (List, Set, Map)
- ArrayList, LinkedList, HashSet, HashMap, etc.
- Iterators
- Comparable and Comparator interfaces

Concurrency

- Threads and multi-threading
- Synchronization
- Thread safety

Lambda Expressions

- Functional interfaces
- Syntax and examples

Java I/O and Networking

- Input and Output streams
- Socket programming basics

Java Database Connectivity (JDBC)

- Connecting to databases
- Executing queries
- Handling transactions

Java Annotations

- Built-in annotations (e.g., @Override, @Deprecated)
- Custom annotations

Java Reflection API

- Class.forName() method
- java.lang.reflect package

JavaFX Basics (Optional)

- Introduction to JavaFX
- Creating GUI applications

Java 8 Features (Optional)

- Lambda expressions
- Stream API
- Default and static methods in interfaces

Best Practices and Design Patterns (Optional)

- Coding conventions
- Singleton, Factory, Observer, and other design patterns

Unit Testing in Java (Optional)

- Introduction to JUnit framework
- Writing and executing test cases

Deployment

- Packaging Java applications
- JAR files
- Java Web Start

Security

- Basics of Java security
- Secure coding practices

Advanced Java Topics (Optional)

- Servlets and JSP
- Enterprise JavaBeans (EJB)
- Hibernate ORM framework
- Spring Framework basics